REQUIREMENT ANALYSIS

FUNCTIONAL REQUIREMENTS

A functional of software system is defined in functional requirements and the behaviour of the system is evaluated when presented with specific inputs or conditions which may include calculations, data manipulation and processing and other specific functionality.

- Our system should be able to load air quality data and pre-process data.
- It should be able to analyse the air quality data.
- It should be able to group data based on hidden patterns.
- It should be able to assign a label based on its data groups.
- It should be able to split data into trainset and testset.
- It should be able to train model using trainset.
- It must validate trained model using testset.
- It should be able to display the trained model accuracy.
- It should be able to accurately predict the air on unseen data.

NON- FUNCTIONAL REQUIREMENTS

Non-functional requirements describe how a system must behave and establish constraints of its functionality. This type of requirements is also known as the system's quality attributes. Attributes such as performance, security, usability, compatibility are not the feature of the system, they required characteristics. They are "developing" properties that emerge from the whole arrangement and hence we can't compose a particular line of code to execute them. Any attributes required by the customer are described by the specifications. We must include only those requirements that are appropriate for our project.

Some Non-Functional Requirements are as follows:

- ➢ Reliability
- ➢ Maintainability
- ➢ Performance
- ➢ Portability
- ➢ Scalability
- ➢ Flexibility

ACCESSIBILITY:

Availability is a general term used to depict how much an item, gadget, administration, or condition is open by however many individuals as would be prudent.

In our venture individuals who have enrolled with the cloud can get to the cloud to store and recover their information with the assistance of a mystery key sent to their email ids.

UI is straightforward and productive and simple to utilize.

MAINTAINABILITY:

In programming designing, viability is the simplicity with which a product item can be altered so as to:

- o Correct absconds
- o Meet new necessities

New functionalities can be included in the task based the client necessities just by adding the proper documents to existing venture utilizing ASP.net and C# programming dialects. Since the writing computer programs is extremely straight-forward, it is simpler to discover and address the imperfections and to roll out the improvements in the undertaking.

SCALABILITY:

Framework is fit for taking care of increment all out throughput under an expanded burden when assets (commonly equipment) are included.

Framework can work ordinarily under circumstances, for example, low data transfer capacity and substantial number of clients.

PORTABILITY:

Convey ability is one of the key ideas of abnormal state programming. Convenient is the product code base components to have the capacity to reuse the current code as opposed to making new code while moving programming from a domain to another. Venture can be executed under various activity conditions gave it meet its base setups. Just framework records and dependant congregations would need to be designed in such case.

The functional requirements for a system describe what the system should do.

Those requirements depend on the type of software being developed, the expected users of the software. These are the statement of services the system should provide, how the system should react to particular inputs and how the system should behave in particular situation.

1. Extracting data from csv files
2. Cleaning the data
3. Vector representation

Non-functional requirements is not about functionality or behaviour of system, but rather are used to specify the capacity of a system. They are more related to properties of system such as quality, reliability and quick response time. Non-functional requirements come up via customer needs, because of budget, interoperability need such as software and hardware requirement, organisational policies or due to some external factors such as:-

- Basic operational Requirement
- Organisational Requirement
- Product Requirement
- User Requirement

HARDWARE REQUIREMENTS:

The following is the hardware requirements of the system for the proposed system:

- Processor: Any Processor above 500MHZ
- RAM: 8 GB
- Hard Disk: 1TB
- Input device: Standard keyboard and mouse

SOFTWARE REQUIREMENTS:

The following is the software requirements of the system for the proposed system:

OS : Windows 10

Platform : Jupyter Notebook

Language : Python

IDE/tool : Anaconda 3-5.0.3

SUPPORTING PYTHON MODULES

Python has an approach to place definitions in a document or in an intuitive case of the interpreter. Such a file is known as a module; definitions from a modules can be brought into different modules or into the fundamental module. Some of the modules used in the project.

S.no	Python Module	Description
1	Ip address	Ip address gives the capacities to generate, control and work on IPv4 and IPv6 addresses and networks.

2	Re	This module gives regular expression matching activities like those found in Perl.
3	urllib.request	The urllib.request module characterizes functions and classes which help in opening URLs (for the most part HTTP) in a complex world.
4	Beautiful Soup	Beautiful Soup is a package in python for parsing HTML and XML records. It makes a parse tree for parsed pages that can be utilized to extricate information from HTML, which is valuable for web scraping
5	Socket	The BSD interface of socket is given access by this module
6	Requests	The HTTP requests are allowed to send by this module making use of Python.